

# United States Patent [19]

Ruffner

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[54] **ACRYLIC-METHYLENE SUCCINIC ESTER  
EMULSION COPOLYMERS FOR  
THICKENING AQUEOUS SYSTEMS**

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## Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 782,571, Oct. 1, 1985,  
which is a continuation-in-part of Ser. No. 719,768,  
Apr. 4, 1985, abandoned.

[51] Int. Cl.<sup>4</sup> ..... **C08F 20/28**

[52] U.S. Cl. .... **526/318; 524/549;  
524/558; 526/270**

[58] Field of Search ..... **526/270, 318**

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## [57] ABSTRACT

Acrylic emulsion copolymers are prepared by emulsion polymerization of (A) a surfactant monomer, (B) an  $\alpha,\beta$ -ethylenically unsaturated carboxylic acid monomer, (C) a nonionic  $\alpha,\beta$ -ethylenically unsaturated monomer and (D) optionally a polyethylenically unsaturated cross-linking monomer. The surfactant monomer is prepared by condensing a mono or polyhydric alcohol nonionic surfactant with methylene succinic acid. At a low pH the copolymer may be in the form of an aqueous dispersion or latex, but thickens upon neutralization of at least some of the carboxyl groups.

**20 Claims, No Drawings**